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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,905	12/26/2001	Kyo Ho Moon	8733.541.00	7606

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1900 K STREET, NW
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EXAMINER

GEBREMARIAM, SAMUEL A

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 01/16/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,905

Applicant(s)

HO MOON, KYO

Examiner

Samuel A Gebremariam

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9 and 12-15 is/are rejected.
- 7) ☐ Claim(s) 3,4,10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-15 drawn to a semiconductor device in Paper No. 5 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5-9 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto US patent No. 6,284,558 in view of admitted prior art and in further view of Brandli et al. US patent No. 5,227,012.

Regarding claims 1 and 9, Sakamoto teaches (figs. 4A-4C) a method of fabricating a device, comprising the steps of: providing a thin film transistor; providing an inorganic insulating film (102) over the thin film transistor; providing an organic insulating film over the inorganic insulating film; and dry etching the organic insulating film and the inorganic insulating film using a mixed ratio gas that etches the organic insulating film faster than the inorganic insulating film.

Sakamoto teaches using wet etch to remove the organic film and using dry etching to remove the inorganic insulating film using a mixed ratio gas.

Sakamoto fails to teach using dry etching to remove the organic film where the mixed ratio gas etches the organic insulating film faster than the inorganic insulating film. Furthermore Sakamoto fails to teach a lower electrode of a storage capacitor.

It is conventional and also taught by Brandli (fig. 4) using a combination of dry etchable organic film (100) and inorganic film (102) in the fabrication of thin film structures.

It is conventional and also taught by admitted prior art to form TFT along with capacitor structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the dry etching process taught by Brandli and the lower electrode structure of admitted prior art in the process of Sakamoto in order to cut the processing step and store charge. Furthermore the combined process of Sakamoto and Brandli inherently etches the organic insulating film faster than the inorganic insulating film since it is known that organic films have a higher etch rate than inorganic films.

The recitation "a method of fabricating an X-ray detecting device" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Regarding claims 2 and 10, Sakamoto teaches substantially the entire claimed process of claim 1 above including the etching rate of the organic insulating film is greater than that of the inorganic insulating film (admitted prior art, page 6, lines 10-20).

Regarding claims 5 and 12, Sakamoto teaches substantially the entire claimed process of claim 1 above including patterning the inorganic insulating film and the organic insulating film to provide a storage insulating film and a first protective film; forming a transparent electrode (27) on the first protective film; forming a second protective film (36) on the first protective film; and providing a pixel electrode (5) on the second protective film (fig. 2, admitted prior).

Regarding claims 6 and 13, Sakamoto teaches (figs. 4A-4E) substantially the entire claimed process of claim 1 above including forming a gate electrode on the substrate (105); forming a gate insulating film (107) over the substrate and over the gate electrode; forming a semiconductor layer (109) on the gate insulating film; and forming source (112) and drain electrodes (111) on the semiconductor layer.

Regarding claims 7 and 14, Sakamoto teaches (figs. 4A-4E) substantially the entire claimed process of claim 1 above including the inorganic insulating film is made from any silicon nitride (102).

Regarding claims 8 and 15, Sakamoto teaches (figs. 4A-4E) substantially the entire claimed process of claim 1 above including the organic insulating film is made from BCB (100).

Allowable Subject Matter

3. Claims 3, 4, 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art of record fails to anticipate or render obvious the process limitation of the mixed ratio gas contains SF₆, O₂, O₂+ Cl₂ and CF₄.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References D-F are cited as being related to gate dielectric comprising silicon nitride.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Admassu Gebremariam whose telephone number is 703 305 1913. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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Samuel Admassu Gebremariam

January 13, 2003

A handwritten signature in black ink that reads "Tom Thomas". The signature is written in a cursive style with a large, stylized "T" at the beginning.

TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800